

# Unit 12 Day 6

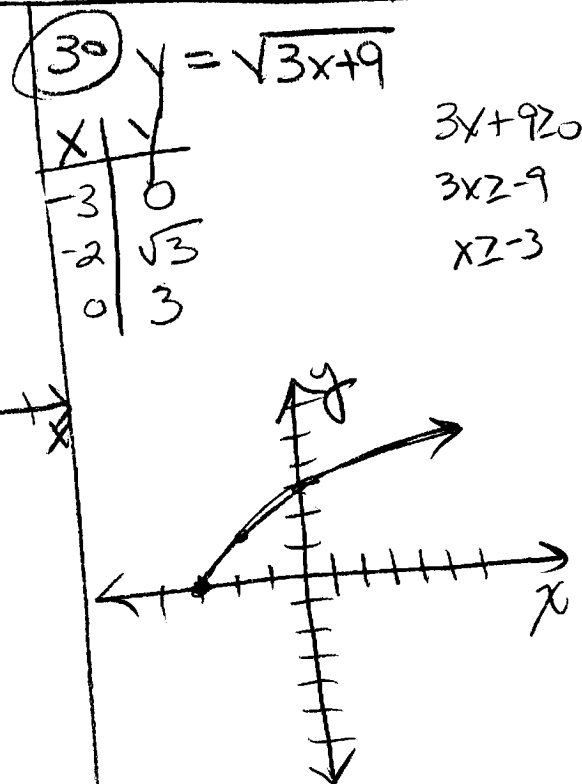
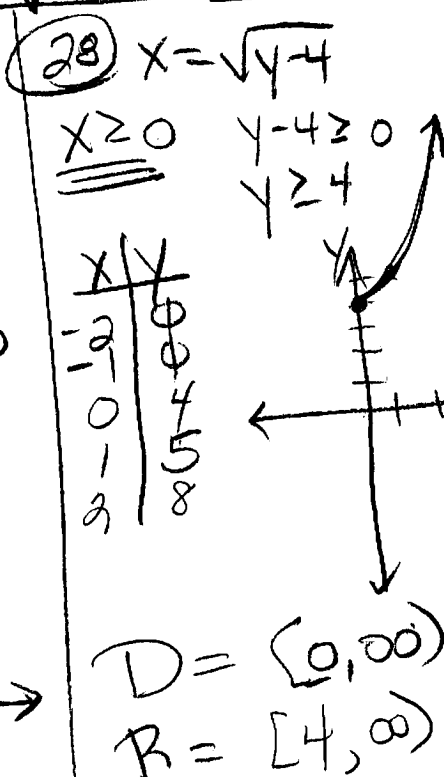
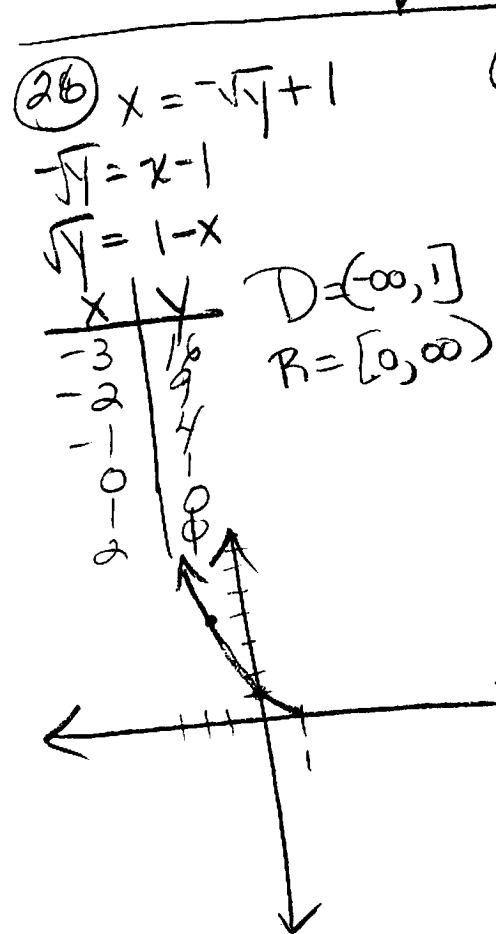
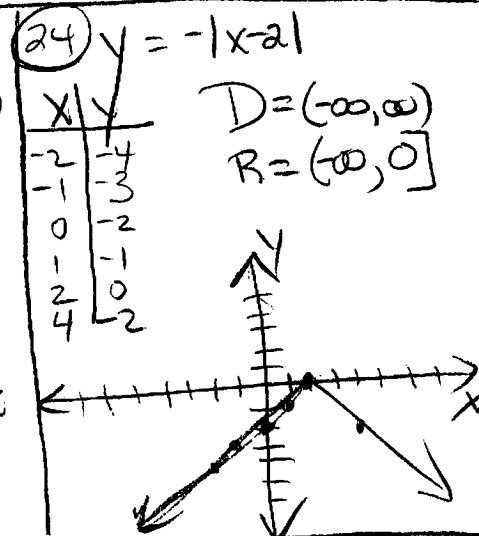
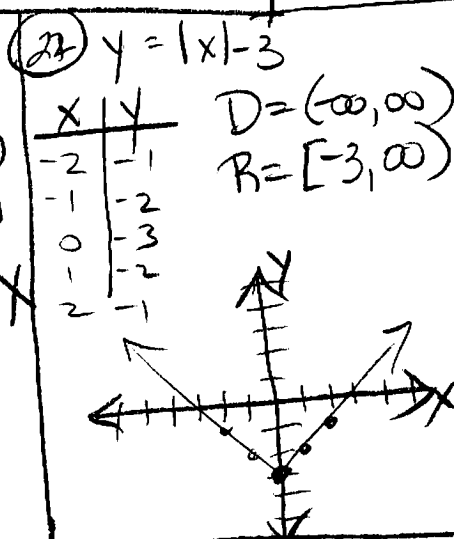
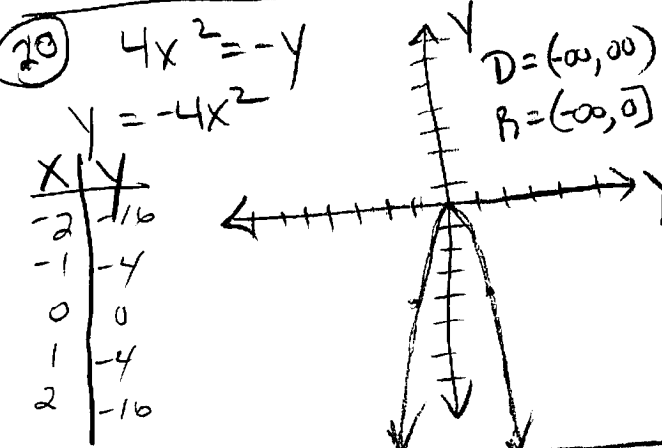
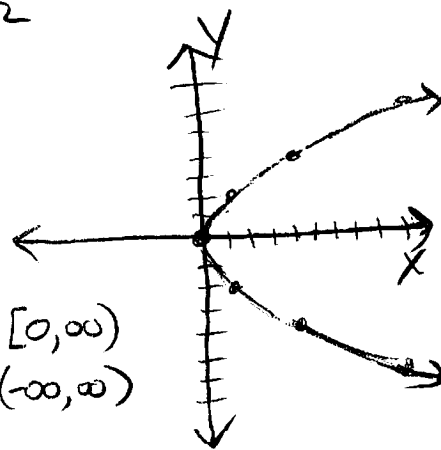
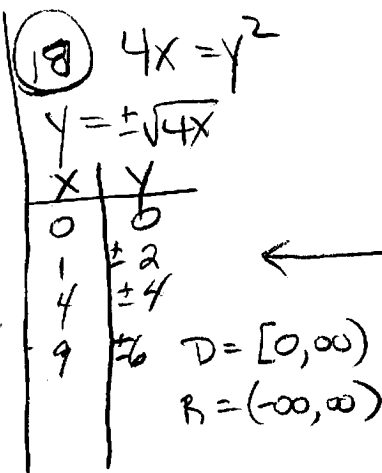
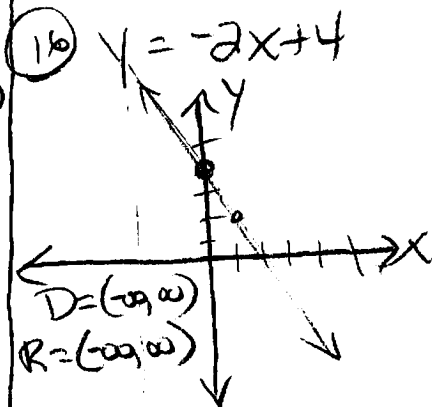
p230-1 7-14 (all), wksts  
16-30 (even)

- ⑦ E  $(-\infty, \infty)$
- ⑧ G  $[0, \infty)$
- ⑨ A  $(-\infty, \infty)$
- ⑩ C  $X = Y^2$
- ⑪ F  $Y = X$
- ⑫ B where  $X = 1.5, Y = 1$
- ⑬ H No
- ⑭ D  $(0, \infty)$

# Unit 12 Day 6

p231

- 69) a) increasing  
b) decreasing  
c) constant
- 70) a) increasing  
b) decreasing  
c) constant



# BASIC GRAPHS / CHARTS

Day 6

A) Complete each of the following tables.

B) Use the information in the tables to complete each graph.

1)  $y = x$

x	-9	-7	-5	-3	-1	0	2	4	6	8
y	-9	-7	-5	-3	-1	0	2	4	6	8

2)  $y = |x|$

x	-9	-7	-5	-3	-1	0	2	4	6	8
y	9	7	5	3	1	0	2	4	6	8

3)  $x = |y|$

x	9	7	5	3	1	0	2	4	6	8
y	-9	-7	-5	-3	-1	0	2	4	6	8

4)  $y = \sqrt{x}$

x	4	1	0	1	4	9
y	2	1	0	1	2	3

5)  $y = x^2$

x	-3	-2	-1	0	1	2	3
y	9	4	1	0	1	4	9

6)  $x = y^2$

x	9	4	1	0	1	4	9
y	-3	-2	-1	0	1	2	3

7)  $y = x^3$

x	-2	-1	-1/2	0	1/2	1	2
y	-8	-1	-1/8	0	1/8	1	8

8)  $y = \sqrt[3]{x}$

x	-8	-1	-1/8	0	1/8	1	8
y	-2	-1	-1/2	0	1/2	1	2

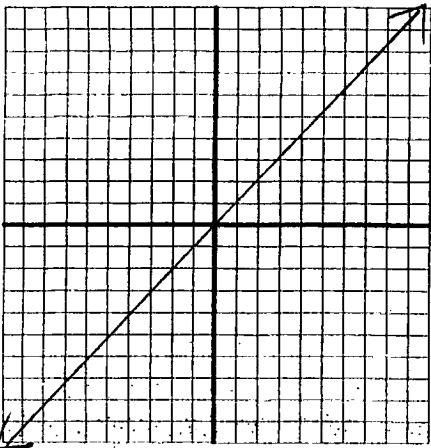
9)  $y = \frac{1}{x}$

x	-8	-4	-2	-1	-1/2	-1/4	0	1/4	1/2	1	2	4	8
y	-1/8	-1/4	-1/2	-1	-2	-4	0	4	2	1	1/2	1/4	1/8

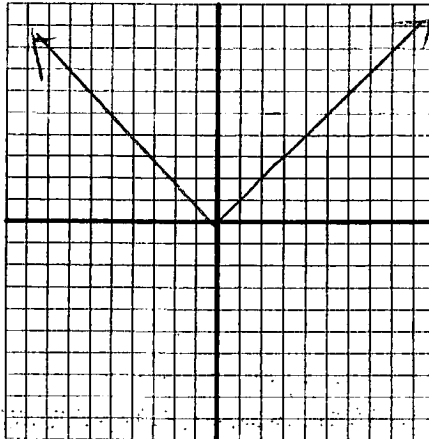
NAME Key  
 PERIOD \_\_\_\_\_ DATE \_\_\_\_\_

GRAPHS OF SOME BASIC FUNCTIONS

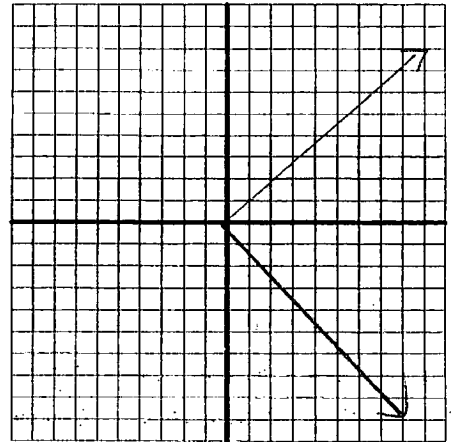
1)  $y = x$



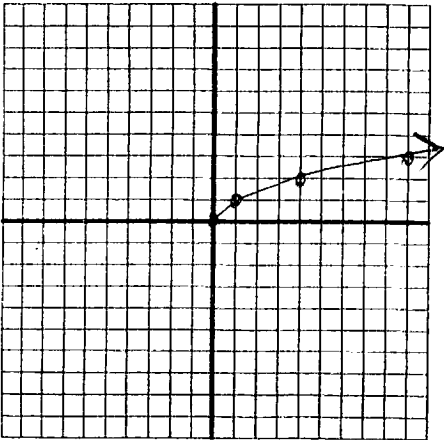
2)  $y = |x|$



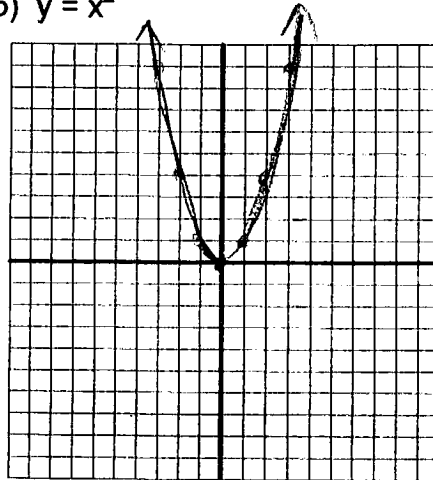
3)  $x = |y|$



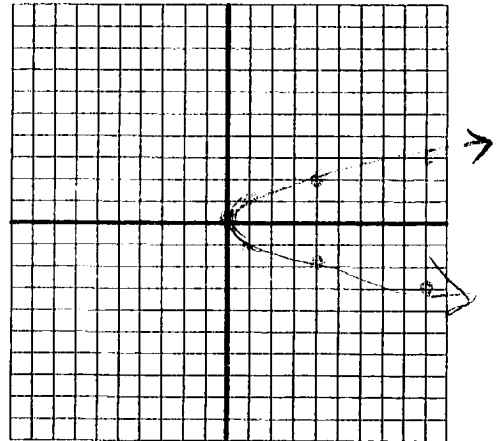
4)  $y = \sqrt{x}$



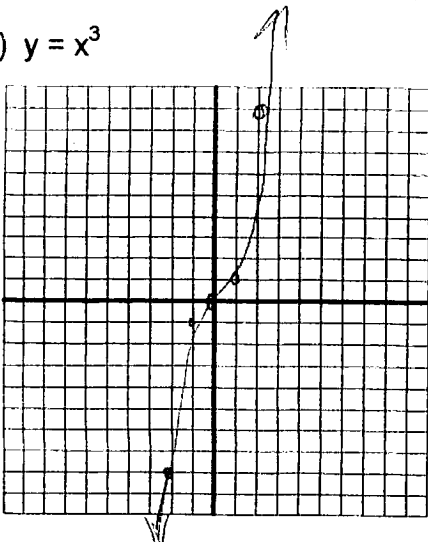
5)  $y = x^2$



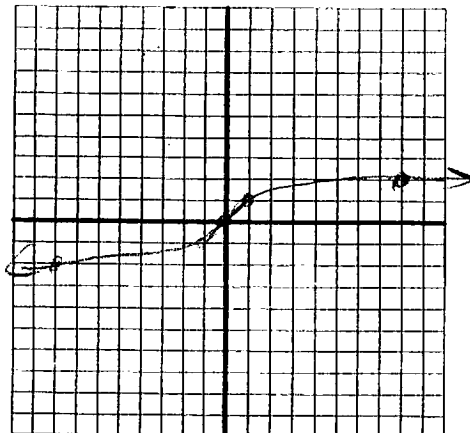
6)  $x = y^2$



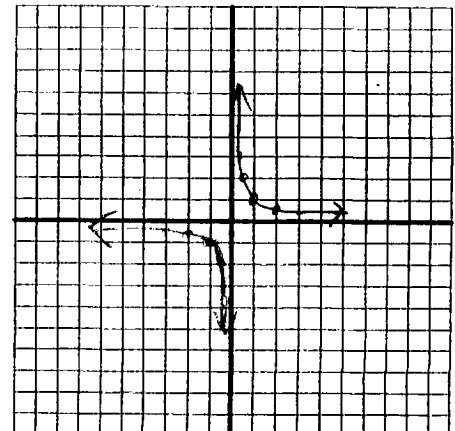
7)  $y = x^3$



8)  $y = \sqrt[3]{x}$



9)  $y = \frac{1}{x}$



NAME

Key

Day 6

PERIOD

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## SPECIAL FUNCTIONS

1) If  $f(x) = |x|$ , compute:

$$f(2) = |2| = 2 \quad f(-1) = |-1| = 1 \quad f(3.5) = |3.5| = 3.5 \quad f(-\sqrt{2}) = |-\sqrt{2}| = \sqrt{2}$$

2) If  $f(x) = [x]$ , compute:

$$f(-\pi) = [-\pi] = -4 \quad f(\sqrt{2}) = [\sqrt{2}] = 1 \quad f(-2.1) = [-2.1] = -3 \quad f(3.7) = [3.7] = 3$$

3) If  $f(x) = |x| - x + [x]$ , compute:

$$f(1) = |1| - 1 + [1] = 1 - 1 + 1 = 1 \quad f(\sqrt{2}) = |\sqrt{2}| - \sqrt{2} + [\sqrt{2}] = \sqrt{2} - \sqrt{2} + 1 = 1 \quad f(\pi) = |\pi| - \pi + [\pi] = \pi - \pi + 3 = 3 \quad f(-2.3) = |-2.3| - (-2.3) + [-2.3] = 2.3 + 2.3 - 3 = 1.6$$

4) For each function below, determine the rule which relates the ordered pairs.

a)  $\{(-1,1) (-2,2) (1,-1) (2,-2)\}$

$$y = -x$$

b)  $\{(2,0) (0,0) (-1,0) (-3,0)\}$

$$y = 0$$

c)  $\{(-1,-3) (0,-1) (1,1) (2,3)\}$

$$y = 2x - 1$$

d)  $\{(-2,4) (-1,1) (0,0) (1,1)\}$

$$y = x^2$$

e)  $\{(1,3) (3,9) (-2,-6) (-4,-12)\}$

$$y = 3x$$

f)  $\{(5, -\frac{1}{5}) (3, -\frac{1}{3}) (\frac{1}{2}, -2) (\frac{1}{4}, -4)\}$

$$y = -\frac{1}{x}$$

g)  $\{(-3,5) (0,5) (1,5) (4,5)\}$

$$y = 5$$

h)  $\{(-2.5,-3) (-1.9,-2) (0.5,0) (1.9,1)\}$

$$y = [x]$$

5) Computers and several calculators have interesting functions built into them.

The greatest integer function, denoted  $\text{INT}(x)$ , matches the  $x$  with the greatest integer value that is less than or equal to it.

Examples:  $\text{INT}(5) = 5$        $\text{INT}(3.79) = 3$        $\text{INT}(4.063) = 4$        $\text{INT}(-3.4) = -4$

Find the following values:

a)  $\text{INT}(2.84) + \text{INT}(4.567) = \underline{2 + 4} = \underline{6}$

b)  $3 \cdot \text{INT}(8.76) = \underline{3 \cdot 8} = \underline{24}$

c)  $(5 \cdot \text{INT}(10)) - 3 = \underline{(5 \cdot 10) - 3} = \underline{47}$

d)  $\text{INT}(3.6) \cdot \text{INT}(4.67) = \underline{3 \cdot 4} = \underline{12}$

e)  $\text{INT}(6.2) \div 3.1 = \underline{6 \div 3.1} = \underline{1.935}$

f)  $\text{INT}(8.98) \div \text{INT}(2.74) = \underline{8 \div 2} = \underline{4}$

g)  $\text{INT}(12.892 \div 3.184) = \underline{\text{INT}(4.089)} = \underline{4}$

h)  $[\text{INT}(4.7) + \text{INT}(3.9)] \div \text{INT}(4) = \underline{[4 + 3] \div 4} = \underline{\frac{7}{4}}$

i)  $\text{INT}(0.123) = \underline{0}$

j)  $\text{INT}(-0.123) = \underline{-1}$

k) If  $\text{INT}(x) = 6$ , what are the possible values of  $x$ ?  $6 \leq x < 7$

l) If  $f(x) = \text{INT}(x + .5)$  compute:

$f(79.3) = \underline{79}$

$f(85.8) = \underline{86}$

$f(89.6) = \underline{90}$

$f(79.7) = \underline{80}$

$f(85.4) = \underline{85}$

$f(89.2) = \underline{89}$